- Cyclones / Climate change

ENVIRONMENT

WHY HURRICANES ARE GETTING STRONGER

They're getting more severe every season. What's the link between these powerful tropical storms and climate change?

WORDS AILSA HARVEY

A hurricane is a tropical cyclone – a rotating low-pressure weather system that contains spiral bands of clouds, rain and thunderstorms. The circling storm requires heat and moisture to form, and only occurs when the sea surface temperature is at least 26.5 degrees Celsius. The air in a hurricane region is unstable, with warm, moist air moving upwards and drier, cooler air falling. As the hurricane moves across the ocean, it draws in water vapour and heat, building the storm.

Hurricanes are becoming stronger as the planet warms due to climate change. Air and ocean temperatures are steadily increasing, making the ideal conditions for hurricanes to form more prevalent. One of the results of global warming is rising sea levels, so when a hurricane sends sea water surging inland, it has the potential for much more widespread destruction and threat to life.

Did you know?
There are around seven hurricanes every year






This aerial image shows a hurricane beginning to form in the Gulf of Mexico

WHERE IN THE WORLD

There are five main basins that are most active in producing hurricanes. These are the East Pacific, West Pacific, North Atlantic, South Atlantic and Indian oceans. The warmest areas, near the equator but not on it, are hotspots for strong hurricanes to emerge, with the most powerful forming in the West Pacific Ocean. This basin is known as the typhoon basin, as it has a large expanse of warm water. From this, enough energy is provided to build some of the strongest storms in history.

Aside from location, specific conditions need to align for a strong hurricane to build. These include higher sea surface temperatures and consistent wind speed and direction across different levels of the atmosphere. This enables the hurricane to organise itself, while changes in the wind can disrupt the structure of the storm.

PRINTED FROM PRESSREADER • COMMERCIAL DISTRIBUTION IS STRICTLY PROHIBITED • NOT FOR SALE • PERSONAL COPY

DID YOU KNOW? Hurricane-force winds extend outwards for 150 miles from a large hurricane

DESTRUCTIVE WEATHER

Hurricanes can have wind speeds exceeding 150 miles per hour, which can cause extensive damage to any buildings, wildlife and people in affected areas. When water is pushed farther over shorelines than usual by the sheer force of the wind, the coast is more readily eroded, alongside damage to roads and other human-made coastal infrastructure. The increase in rainfall that comes with the storms often leads to flash floods and a greater chance of landslides as water infiltrates the earth. Regardless of the strength of the hurricane itself, the strength of large-scale wind patterns across Earth determines how long a hurricane lingers in one region. Stronger wind currents can move a hurricane quickly across the land, reducing the time it spends damaging one area.



The aftermath of 2018's Hurricane Michael in Mexico Beach, Florida

THE ANATOMY OF POWER

What gives a hurricane such intense strength?

1 EYE
As a hurricane increases in strength, the clear centre becomes more defined.

2 EYEWALL
The strongest part of the storm surrounds the eye. When above warmer seas, more heat and moisture intensifies these winds.

7 MAXIMISING SIZE
A high moisture content in the atmosphere helps the outer bands grow in size.

6 RAPID ROTATION
Warmer oceans provide energy to the hurricane, increasing rotation speed.

3 RAINBANDS
Heavy rain spirals from the centre. This rainfall increases when the air is warmer.

5 STORM SURGE
Strong winds cause water levels to rise to abnormally high levels. With sea levels rising already due to global warming, these surges are stronger, pushing water farther inland.

© Shutterstock

COMMERCIAL DISTRIBUTION IS STRICTLY PROHIBITED • PRINTED FROM PRESSREADER • NOT FOR SALE